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What is claimed is:

1. A method for isolating a self-renewing, multipotent, slow-cycling cell comprising obtaining a
5 population of cells from a sample and sorting the population of cells based on the presence of CD34 and the amount of a selected slow-cycling cell marker expressed by each cell, so that a self-renewing, multipotent, slow-cycling cell is isolated.
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2. A cell isolated according to the method of claim 1.
3. The cell of claim 2, wherein said cell lacks an increase in expression of a marker associated with a cell
15 committed to a specified lineage.
4. The cell of claim 2, wherein said cell lacks an increase in expression of a marker associated with a classical stem cell.
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5. The cell of claim 2, wherein said cell will differentiate into an epidermal cell, neuronal cell, or glial cell.
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6. A clonal population comprising cells of claim 2.
7. A method for isolating a self-renewing, multipotent, slow-cycling cell comprising:
- 30 a) introducing into a cell a nucleic acid sequence encoding a regulatable transcription factor operably linked to a promoter which is active in a slow-cycling cell;

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b) introducing into said cell a nucleic acid sequence encoding a reporter protein operably linked to a regulated promoter to which the regulatable transcription factor binds;

5 c) activating the regulatable transcription factor so that expression of the reporter protein is increased;

d) inactivating the regulatable transcription factor so that expression of the reporter protein is decreased;

10 e) incubating the cell for a sufficient amount of time so that the cell goes through one or more cell cycles to generate a population of cells;

f) detecting the amount of reporter in the population of cells;

15 g) sorting the population of cells by the amount of reporter present in each cell,

wherein sorted cells containing increased levels of the reporter is indicative of said sorted cells being self-renewing, multipotent, slow-cycling cells.

20 8. The method of claim 7, further comprising the step of:

h) sorting the population of cells based on the presence of CD34 and the amount of a selected slow-cycling cell marker.

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9. A cell isolated according to the method of claim 7.

10. A cell isolated according to the method of claim 8.

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11. The cell of claim 10, wherein said cell lacks an increase in expression of a marker associated with a cell committed to a specified lineage.

5 12. The cell of claim 10, wherein said cell lacks an increase in expression of a marker associated with a classical stem cell.

10 13. The cell of claim 9, wherein said cell will differentiate into an epidermal cell, neuronal cell, or glial cell.

15 14. The cell of claim 10, wherein said cell will differentiate into an epidermal cell, neuronal cell, or glial cell.

15. A clonal population comprising cells of claim 9.

20 16. A clonal population comprising cells of claim 10.

25 17. A method for generating a clonal population of self-renewing, multipotent cells comprising incubating a selected, isolated, self-renewing, multipotent, slow-cycling cell in the presence of about 0.2 mM to 0.5 mM calcium and a layer of fibroblast cells to generate a clonal population of the self-renewing, multipotent cells.

30 18. A method for inhibiting the growth of a selected cell comprising contacting a selected cell with an effective amount of BMP6 or FGF-18 thereby inhibiting the growth of the selected cell.

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19. A non-human transgenic animal model whose genome contains a transgene comprising a nucleic acid sequence of a tetracycline-response element operably linked to a nucleic acid sequence of a minimal promoter which is
5 further operably linked to a nucleic acid sequence encoding a long-lived reporter protein.

20. The non-human transgenic animal model of claim 19, wherein said animal model further contains a transgene
10 comprising nucleic acid sequences of a regulated promoter operably linked to a nucleic acid sequence encoding a tetracycline-responsive transcription factor that binds to the tetracycline-response element so that the reporter protein is expressed.